

=> FILE REG

FILE 'REGISTRY' ENTERED AT 13:39:35 ON 23 NOV 2007
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=> D HIS

FILE 'HCAPLUS' ENTERED AT 13:02:46 ON 23 NOV 2007
L1 48 S MARSACQ ?/AU
L2 5275 S ROUX ?/AU
L3 5159 S PERRIN ?/AU
L4 16 S BRUNEA ?/AU
L5 1 S L1 AND L2 AND L3 AND L4

FILE 'REGISTRY' ENTERED AT 13:03:38 ON 23 NOV 2007
L6 1 S 29296-32-0

FILE 'HCA' ENTERED AT 13:06:05 ON 23 NOV 2007
L7 16 S L6 (L) (QUAT? OR TRIALKYL? OR TETRAALKYL? OR TETRAALKLY?
L8 71657 S FUEL?(2A) (CELL OR CELLS)
L9 492767 S ELECTROLY?
L10 245654 S (BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY? OR
L11 QUE ELECTROD## OR CATHOD## OR ANOD##
L12 1 S L7 AND (L8 OR L9 OR L10 OR L11 OR 52/SC,SX OR 72/SC,SX)

FILE 'LREGISTRY' ENTERED AT 13:09:29 ON 23 NOV 2007
L13 STR

FILE 'REGISTRY' ENTERED AT 13:13:32 ON 23 NOV 2007
L14 SCR 2043 AND 1614
L15 50 S L13 AND L14

FILE 'LREGISTRY' ENTERED AT 13:14:04 ON 23 NOV 2007
L16 STR L13

FILE 'REGISTRY' ENTERED AT 13:32:35 ON 23 NOV 2007
L17 0 S L16 AND L14

FILE 'LREGISTRY' ENTERED AT 13:34:18 ON 23 NOV 2007
L18 STR L16

FILE 'REGISTRY' ENTERED AT 13:36:49 ON 23 NOV 2007
L19 0 S L18 AND L14
L20 1 S L18 AND L14 FUL

SAV L20 CHU271/A

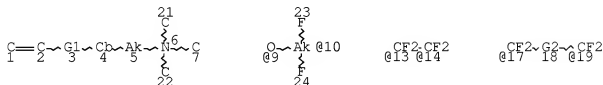
FILE 'HCA' ENTERED AT 13:38:40 ON 23 NOV 2007

L21 1 S L20
L22 2 S L12 OR L21
L23 15 S L7 NOT L22

FILE 'REGISTRY' ENTERED AT 13:39:35 ON 23 NOV 2007

=> D L20 QUE STAT

L14 SCR 2043 AND 1614
L18 STR



Page 1-A



Page 1-B

VAR G1=O/CF2/13-2 14-4/17-2 19-4/9-2 10-4/26-2 27-4

REP G2=(1-8) CF2

NODE ATTRIBUTES:

NSPEC IS RC AT 7

NSPEC IS RC AT 21

NSPEC IS RC AT 22

DEFAULT MLEVEL IS ATOM

GGCAT IS UNS AT 4

GGCAT IS SAT AT 5

GGCAT IS SAT AT 10

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 20

STEREO ATTRIBUTES: NONE

L20 1 SEA FILE=REGISTRY SSS FUL L18 AND L14

100.0% PROCESSED 13978 ITERATIONS

1 ANSWERS

SEARCH TIME: 00.00.01

=> FILE HCA

FILE 'HCA' ENTERED AT 13:39:43 ON 23 NOV 2007

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=> D L22 1-2 BIB ABS HITSTR HITIND

L22 ANSWER 1 OF 2 HCA COPYRIGHT 2007 ACS on STN

AN 143:46041 HCA Full-text

TI Polymeric quaternary ammonium hydroxide membranes as
carbonation-resistant electrolytes for alkaline
fuel cells

IN Marsacq, Didier; Roux, Christel; Perrin, Max; Brunea, John A.

PA Commissariat a l'Energie Atomique, Fr.

SO Fr. Demande, 21 pp.

CODEN: FRXXBL

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	FR 2863777	A1	20050617	FR 2003-14730	200312 16
	FR 2863777	B1	20060217		
	WO 2005069413	A1	20050728	WO 2004-FR3092	200412 02
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,				

VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC,
 NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,
 GN, GQ, GW, ML, MR, NE, SN, TD, TG
 EP 1695402 A1 20060830 EP 2004-805612

200412
 02

R: DE, FR, GB, IT
 JP 2007514290 T 20070531 JP 2006-544487

200412
 02

US 2007128500 A1 20070607 US 2006-582271

200606
 09

PRAI FR 2003-14730 A 20031216
 WO 2004-FR3092 W 20041202

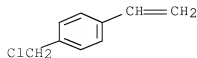
AB An alk. fuel cell in which the
 electrolyte is resistant to carbonation has a conductive polymer
 membrane contg., as active electrolyte, quaternary ammonium hydroxide
 salts, which are typically prep'd. as derivs. of polystyrene, of
 general formula $-(CX_1X_2-C(X_3)-Ar-R-N+R_1R_2R_3.OH)-$ (X_1 and $X_2 = H, Cl,$
 or F ; $X_3 = H, Cl, F,$ and perfluoroalkyl; Ar is an arom. substituent;
 $R = -CH_2-$ and $-(CF_2)_m-CH_2-$ ($m = 1-10$), or a direct covalent bond; $R_1,$
 $R_2,$ and R_3 is alkyl; and n is an integer). Alternatively, a spacer
 group can be incorporated between the polymer backbone and the arom.
 group, such as $-O-CF_2-$ and $-(CF_2)_1-10$. The polymeric quaternary salt
 membrane has an ionic cond. of ≥ 0.005 S/cm.

IT 29296-32-0, Poly(4-chloromethylstyrene)
 (trialkylamine quaternization of; in prepn.
 of polymeric quaternary ammonium hydroxide membranes
 for alk. fuel cells)

RN 29296-32-0 HCA
 CN Benzene, 1-(chloromethyl)-4-ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 1592-20-7
 CMF C9 H9 Cl



IC ICM H01M004-86
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 ST quaternary ammonium hydroxide polymer fuel cell electrolyte; alk fuel cell carbonation resistant electrolyte; chloromethylstyrene quaternization fuel cell electrolyte
 IT Fuel cells
 (alk. fuel cells; polymeric quaternary ammonium hydroxide membranes as carbonation-resistant electrolytes for alk. fuel cells)
 IT Conducting polymers
 (membranes; polymeric quaternary ammonium hydroxide membranes as carbonation-resistant electrolytes for alk. fuel cells)
 IT Fuel cell electrolytes
 (polymeric quaternary ammonium hydroxide membranes as carbonation-resistant electrolytes for alk. fuel cells)
 IT Quaternary ammonium compounds, uses
 (polymers, hydroxides, membranes; polymeric quaternary ammonium hydroxide membranes as carbonation-resistant electrolytes for alk. fuel cells)
 IT 29296-32-0, Poly(4-chloromethylstyrene)
 (trialkylamine quaternization of; in prepn. of polymeric quaternary ammonium hydroxide membranes for alk. fuel cells)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 2 OF 2 HCA COPYRIGHT 2007 ACS on STN
 AN 93:213308 HCA Full-text
 TI Antistatic-treated silver halide photographic materials
 PA Fuji Photo Film Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese

FAN.CNT 1

	PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
PI	JP 55057842	A	19800430	JP 1978-130841	

197810

JP 58056858 B 19831216
 US 4374924 A 19830222 US 1982-351812

198202
 24

PRAI JP 1978-130841 A 19781024
 US 1979-87837 A1 19791024

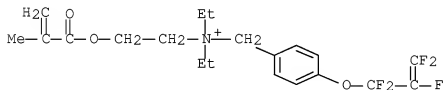
AB Ag halide photog. antistatic layers are prep'd. by using a dispersion of a polymer of the formula $(Z)_x(Z1)_y[(CH_2CRCOZ_2NR_1R_2R_3)X-]_z$ (Z = monomer units derived from monomers having ≥ 2 ethylenic double bonds; Z1 = monomer units derived from an ethylene monomer; Z2 = C1-12 divalent org. moiety; R = H, C1-6 alkyl; R1,R2,R3 = C1-20 alkyl, C7-20 aralkyl; R1R2, R1R3, or R2R3 combinations may form heterocyclic ring with the N; X- = anion; x = 0.25-10, y = 0-90, and z = 10-99 mol%). Thus, p-divinylbenzene-cyclohexyl methacrylate-2-(diethylamino)ethyl methacrylate copolymer was reacted with PhCH2Cl to give a copolymer which was used to form antistatic coatings for photog. films. The polymer exhibited excellent antistatic properties.

IT 75151-31-4
 (antistatic agent, for silver halide photog. films)

RN 75151-31-4 HCA
 CN Benzenemethanaminium, N,N-diethyl-N-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-4-[(1,1,2,3,3-pentafluoro-2-propenyl)oxy]-, chloride, polymer with cyclohexyl 2-methyl-2-propenoate and 1,4-diethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 75151-30-3
 CMF C20 H25 F5 N O3 . Cl

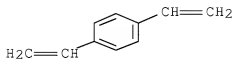


● Cl-

CM 2

CRN 105-06-6

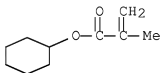
CMF C10 H10



CM 3

CRN 101-43-9

CMF C10 H16 O2



IC G03C001-82; C09K003-16

CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic Processes)

IT 75148-94-6 75151-27-8 75151-29-0 75151-31-4

75182-70-6 75182-71-7 75182-72-8 75182-73-9 75182-74-0

75196-23-5

(antistatic agent, for silver halide photog. films)

=> D L23 1-15 TI

L23 ANSWER 1 OF 15 HCA COPYRIGHT 2007 ACS on STN

TI Synthesis and Characterization of Model Dumbbell Polymers

L23 ANSWER 2 OF 15 HCA COPYRIGHT 2007 ACS on STN

TI Green synthesis of nitro alcohols catalyzed by solid-supported tributylammonium chloride in aqueous medium

L23 ANSWER 3 OF 15 HCA COPYRIGHT 2007 ACS on STN

TI Antimicrobial surfaces prepared using atom transfer radical

polymerization

- L23 ANSWER 4 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Controlled radical polymerization. Synthesis of chloromethylstyrene/styrene block copolymers
- L23 ANSWER 5 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Design of multifunctional polymeric photosensitizers containing pendant (nitroaryl)oxy groups and quaternary onium salts for photochemical valence isomerization of potassium 3-phenyl-2,5-norbornadiene-2-carboxylate
- L23 ANSWER 6 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Alkylamine group-containing styrene polymer with electric conductivity
- L23 ANSWER 7 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Study on the heparinization of quaternary ammoniated poly-p-chloromethylstyrene
- L23 ANSWER 8 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Quaternization of poly(p-chloromethylstyrene)
- L23 ANSWER 9 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Preparation of bactericidal polymers
- L23 ANSWER 10 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Preparation of bactericidal polymers bearing quaternary dipyridinium groups
- L23 ANSWER 11 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Induced circular dichroism in the 2-benzoylbenzoate anion paired with polymer-supported optically active quaternary ammonium ions
- L23 ANSWER 12 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Reverse-osmosis membranes
- L23 ANSWER 13 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Image-receptor material for color diffusion-transfer process
- L23 ANSWER 14 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Polymers containing porphyrin residues in the side chains
- L23 ANSWER 15 OF 15 HCA COPYRIGHT 2007 ACS on STN
TI Spontaneous polymerization during the reaction of halogen-containing vinyl monomers with tertiary amines

=> D L23 6 CBIB ABS HITSTR HITIND

L23 ANSWER 6 OF 15 HCA COPYRIGHT 2007 ACS on STN

116:236744 Alkylamine group-containing styrene polymer with electric conductivity. Kishiki, Hiroshi (Sanyo Chemical Industries Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04001248 A 19920106 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-101388 19900417.

AB Title polymer comprises repeating units of CH₂CR₁R₂ (R₁ = H, Me; R₂ = C₆H₄CH₂X, C₆H₄CH₂N+R₂R₃R₄ X-; R₂-4 = H, Cl-4 alkyl; X = halogen). Thus, a polymer, prepd. by dissolving poly(p-chloromethylstyrene) in 1,2-dichloroethane and reacting with aq. trimethylamine soln. and pptg. in Me₂CO, was dissolved in DMF-water mixt. and applied on a glass plate to give a membrane. The membrane was photo-irradiated and heated with MeOH to give a sample showing surface resistivity 3.4 + 10⁷ Ω.

IT 29296-32-0DP, reaction products with trimethylamine
(prepn. of, elec. conductive)

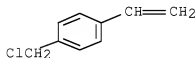
RN 29296-32-0 HCA

CN Benzene, 1-(chloromethyl)-4-ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 1592-20-7

CMF C9 H9 Cl



IC ICM C08L025-18

ICS G03C001-89

CC 37-3 (Plastics Manufacture and Processing)

IT 75-50-3DP, Trimethylamine, reaction products with poly[(chloromethyl)styrene] 29296-32-0DP, reaction products with trimethylamine 44889-28-3DP, polymer with trimethylammoniomethylated polystyrene
(prepn. of, elec. conductive)

=> D HIS L24-

L24 FILE 'REGISTRY' ENTERED AT 13:44:24 ON 23 NOV 2007
146 S C9 H9 CL/MF

L25 FILE 'LREGISTRY' ENTERED AT 13:45:44 ON 23 NOV 2007
E BENZENE/CN
L26 1 S E3
50156 S 46.150.18/RID

L27 FILE 'REGISTRY' ENTERED AT 13:46:16 ON 23 NOV 2007
96 S L24 AND L26
L28 11 S L27 AND IDS/CI
L29 39 S L27 AND ?ETHENYL?/CNS
L30 7 S L29 AND L28
SEL L30 1-7 RN
EDIT E1-E7 /BI /CRN
L31 1139 S E1-E7
L32 4 S L31 AND 1/NC

L33 FILE 'HCA' ENTERED AT 13:51:30 ON 23 NOV 2007
56 S L32(L)(QUAT? OR TRIALKYL? OR TETRAALKYL? OR TETRAALKYL?
L34 8 S L33 AND (L8 OR L9 OR L10 OR L11 OR 52/SC,SX OR 72/SC,SX
L35 8 S L34 NOT (L22 OR L23)

=> D L35 1-8 BIB ABS HITSTR HITIND

L35 ANSWER 1 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 146:531693 HCA Full-text
TI Investigations of the ex situ ionic conductivities at 30 °C
of metal-cation-free quaternary ammonium alkaline anion-exchange
membranes in static atmospheres of different relative humidities
AU Varcoe, John R.
CS Department of Chemistry, University of Surrey, Guildford, GU2 7XH,
UK
SO Physical Chemistry Chemical Physics (2007), 9(12), 1479-1486
CODEN: PPCPFQ; ISSN: 1463-9076
PB Royal Society of Chemistry
DT Journal
LA English
AB This article presents the 1st systematic study of the effect of
Relative Humidity (RH) on the water content and hydroxide ion cond.
of quaternary ammonium-based Alk. Anion-Exchange Membranes (AAEMs).
These AAEMs were developed specifically for application in alk.
membrane fuel cells, where conductivities of >0.01 S cm⁻¹ are

mandatory. When fully hydrated, an ETFE-based radiation-grafted AAEM exhibited a hydroxide ion cond. of $0.030 \pm 0.005 \text{ S cm}^{-1}$ at 30° without addnl. incorporation of metal hydroxide salts; this is contrary to the previous wisdom that anion-exchange membranes are very low in ionic cond. and represents a significant breakthrough for metal-cation-free alk. ionomers. Desirably, this AAEM also showed increased dimensional stability on full hydration compared to a Nafion-115 proton-exchange membrane; this dimensional stability is further improved (with no concomitant redn. in ionic cond.) with a com. AAEM of similar d. but contg. addnl. crosslinking. However, all of the AAEMs evaluated in this study demonstrated unacceptably low conductivities when the humidity of the surrounding static atms. was reduced (RH = 33-91%); this highlights the requirement for continued AAEM development for operation in H₂/air fuel cells with low humidity gas supplies. Preliminary studies indicate that the activation energies for OH⁻ conduction in these quaternary ammonium-based solid polymer electrolytes are typically 2-3 times higher than for H⁺ conduction in acidic Nafion-115 at all humidities.

IT 9080-67-5 9080-67-5D, reaction products with
trimethylamine and potassium hydroxide
(ionic conductivities of metal-cation-free quaternary
ammonium alk. anion-exchange membranes in static atmospheres of
different relative humidities)

RN 9080-67-5 HCA

CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2

CMF C9 H9 Cl

CCI IDS



D1-CH₂-Cl

D1-CH=CH₂

RN 9080-67-5 HCA

CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1
CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS



D1-CH₂-Cl

D1-CH=CH₂

CC 76-1 (Electric Phenomena)
Section cross-reference(s): 52, 66, 72
IT Activation energy
Anion exchange membranes
Electrolytes
Fuel cells
Gamma ray
Humidity
Hydration, chemical
Ionic conductivity
Radiation
(ionic conductivities of metal-cation-free quaternary ammonium alk. anion-exchange membranes in static atmospheres of different relative humidities)
IT 9080-67-5 9080-67-5D, reaction products with trimethylamine and potassium hydroxide
(ionic conductivities of metal-cation-free quaternary ammonium alk. anion-exchange membranes in static atmospheres of different relative humidities)
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 2 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 129:179182 HCA Full-text
TI A humidity sensor using crosslinked poly(chloromethylstyrene)
AU Furukawa, Teruyuki; Matsuguchi, Masanobu; Sakai, Yoshiro
CS Faculty of Engineering, Ehime University, Matsuyama, 790, Japan
SO Chemical Sensors (1997), 13(Suppl. B, Proceedings of the 25th Chemical Sensor Symposium, 1997), 89-92

CODEN: KAGSEU

PB Denki Kagakkai Kagaku Sensa Kenkyukai

DT Journal

LA Japanese

AB Poly(chloromethylstyrene) was simultaneously cross-linked and quaternized by the reaction with N,N,N',N'-tetramethyl-1,6-diaminohexane on the surface of an alumina substrate which has a pair of platinum electrodes on it. The impedance of this device decreased as the relative humidity increased. The device with a higher degree of quaternization showed a higher sensitivity due to the increase in the no. of hydrophilic ammonium group. The hysteresis also depended on the degree of quaternization. The diffusion const. of water in the film was estd. according to the std. Fickian model. As the degree of quaternization increased, the diffusion const. increased, resulting in a decrease in hysteresis.

IT 9080-67-5, Poly(chloromethylstyrene)
(crosslinked and quaternized by the reaction with
N,N,N',N'-tetramethyl-1,6-diaminohexane; a humidity
sensor using crosslinked poly(chloromethylstyrene))

RN 9080-67-5 HCA

CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2

CMF C9 H9 Cl

CCI IDS



D1-CH₂-Cl

D1-CH=CH₂

CC 59-1 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 76, 79

IT 9080-67-5, Poly(chloromethylstyrene)

(crosslinked and quaternized by the reaction with
N,N,N',N'-tetramethyl-1,6-diaminohexane; a humidity
sensor using crosslinked poly(chloromethylstyrene))

L35 ANSWER 3 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 123:147512 HCA Full-text
TI Humidity sensor durable at high humidity using simultaneously
crosslinked and quaternized poly(chloromethyl styrene)
AU Sakai, Yoshiro; Sadaoka, Yoshihiko; Matsuguchi, Masanobu; Sakai,
Hiroki
CS Department of Applied Chemistry, Faculty of Engineering, Ehime
University, 3, Bunkyo-cho, Matsuyama, 790, Japan
SO Sensors and Actuators, B: Chemical (1995), B25(1-3), 689-91
CODEN: SABCEB; ISSN: 0925-4005
PB Elsevier
DT Journal
LA English
AB In order to prep. a resistive-type humidity sensor that is durable at
high humidities or even in dewing, poly(chloromethyl styrene) is
simultaneously crosslinked and quaternized (i.e., a quaternary
ammonium group is added to the polymer) by the reaction with
N,N,N',N'-tetramethyl-1,6-hexanediamine on the surface of an alumina
substrate on which a pair of gold electrodes is previously deposited.
The sensor is durable even after soaking in water for two hours. The
response time is shorter in samples with a higher degree of
quaternization. An interpenetrating polymer network (IPN) film is
also formed on a similar substrate using the crosslinked quaternized
poly(chloromethyl styrene) and ethyleneglycol dimethylacrylate. A
sensor based on the IPN film has a shorter response time than a
sensor based on the crosslinked quaternized poly(chloromethyl
styrene).
IT 9080-67-5, Poly(chloromethyl styrene)
(humidity sensor with crosslinked and quaternized
poly(chloromethyl styrene))
RN 9080-67-5 HCA
CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS



D1-CH₂-Cl

D1-CH=CH₂

CC 47-8 (Apparatus and Plant Equipment)
IT 111-18-2, N,N,N',N'-Tetramethyl-1,6-hexanediamine 9080-67-5
, Poly(chloromethyl styrene)
(humidity sensor with crosslinked and quaternized
poly(chloromethyl styrene))

L35 ANSWER 4 OF 8 HCA COPYRIGHT 2007 ACS on STN

AN 122:95371 HCA Full-text

TI A solid-state pH sensor based on a Nafion-coated iridium oxide
indicator electrode and a polymer-based silver chloride
reference electrode

AU Kinlen, Patrick J.; Heider, John E.; Hubbard, David E.

CS Monsanto Chemical Group, St. Louis, MO, 63167, USA

SO Sensors and Actuators, B: Chemical (1994), B22(1), 13-25
CODEN: SABCEB; ISSN: 0925-4005

PB Elsevier

DT Journal

LA English

AB As an alternative to the glass pH electrode, an entirely solid-state
pH sensor (pH-sensing and ref. electrodes) was developed based on an
annealed permselective polymer(Nafion)-coated Ir oxide pH indicator
electrode and a polymer-modified Ag-Ag chloride ref. electrode. When
a soln. of Nafion is coated onto the Ir oxide surface and annealed at
210°, it becomes permselective to cations. The membrane thus
transports protons, but attenuates the effects of anionic oxidizing
or reducing (redox) species that interfere with the response of an
uncoated electrode. The ref.-electrode design involves coating a Ag-
Ag chloride surface with a chloride-ion-contg. polymer (e.g., NEt₃
quaternized polychloromethylstyrene). The chloride ion is trapped
within this polymer layer by encapsulating it with a Nafion outer
layer. After annealing, the Nafion membrane effectively blocks
chloride-ion diffusion to the test soln. and maintains a const.
chloride-ion activity on the Ag chloride surface; thus a const.
electrode potential is maintained. Several sensor designs based on
coated wires, cermets and alumina ceramics were evaluated for pH

response and stability. Distinctive features of the solid-state technol. include glass-free construction, chem. resistance and high impact strength.

IT 9080-67-5D, Polychloromethylstyrene, triethylamine
quaternized
(solid-state pH sensor based on Nafion-coated iridium oxide
indicator electrode and polymer-based silver chloride
ref. electrode)

RN 9080-67-5 HCA

CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2

CMF C9 H9 Cl

CCI IDS



D1-CH₂-Cl

D1-CH=CH₂

CC 79-2 (Inorganic Analytical Chemistry)

Section cross-reference(s): 72

ST solid state pH sensor Nafion based; iridium oxide indicator
electrode Nafion coated; polymer based silver chloride ref
electrode

IT Electrodes

Sensors

pH

(solid-state pH sensor based on Nafion-coated iridium oxide
indicator electrode and polymer-based silver chloride
ref. electrode)

IT Polyoxyalkylenes, analysis

(fluorine- and sulfo-contg., ionomers, solid-state pH sensor
based on Nafion-coated iridium oxide indicator electrode
and polymer-based silver chloride ref. electrode)

IT Fluoropolymers

(polyoxyalkylene-, sulfo-contg., ionomers, solid-state pH sensor
based on Nafion-coated iridium oxide indicator electrode)

and polymer-based silver chloride ref. electrode)

IT Ionomers
(polyoxyalkylenes, fluorine- and sulfo-contg., solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode and polymer-based silver chloride ref. electrode)

IT Electrodes
(ref., solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode and polymer-based silver chloride ref. electrode)

IT 7783-90-6, Silver chloride, analysis 9080-67-5D, Polychloromethylstyrene, triethylamine quaternized 12030-49-8, Iridium dioxide
(solid-state pH sensor based on Nafion-coated iridium oxide indicator electrode and polymer-based silver chloride ref. electrode)

L35 ANSWER 5 OF 8 HCA COPYRIGHT 2007 ACS on STN

AN 109:213592 HCA Full-text

TI Batteries having conductive polymer-containing polymer membranes

IN Sada, Toshikatsu; Saeki, Kiyoko

PA Tokuyama Soda Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	JP 63141271	A	19880613	JP 1986-287615	19861204

	JP 08028220	B	19960321
PRAI	JP 1986-287615		19861204

AB The title batteries have a polymer membrane contg. an unevenly distributed conducting polymer between their anode and cathode. The polymer membrane is an anion- or cation-exchanger membrane. Thus, a Neosepta AM1 membrane was placed in contact with a 3% pyrrole soln. on 1 side for 24 h under stirring of the soln. to sat. the membrane with pyrrole, then the membrane was placed in contact with a 5% aq. FeCl3 soln. on the same side for 4 h under stirring. The pyrrole-impregnated side of the membrane turned black after the treatment. A battery was obtained by pressing Pt plates on both side of the treated membrane. The battery had a voltage of 0.82 V and a current of 58 μ A/cm².

IT 9080-67-5D, Polychloromethylstyrene, reaction products with
 N,N,N',N'-tetramethylethylenediamine
 (composite membranes contg. conducting polymers and, for
 batteries)

RN 9080-67-5 HCA

CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2

CMF C9 H9 Cl

CCI IDS



D1-CH₂-Cl

D1-CH=CH₂

IC ICM H01M010-40
 ICS H01B001-12; H01B001-20

CC 52-2 (Electrochemical, Radiational, and Thermal Energy
 Technology)
 Section cross-reference(s): 38

ST Neosepta AM1 polypyrrole platinum battery

IT Batteries, primary
 (conducting polymer-ion exchanger composite)

IT 110-18-9D, N,N,N',N'-Tetramethylethylenediamine, reaction products
 with polychloromethylstyrene 9002-98-6 9080-67-5D,
 Polychloromethylstyrene, reaction products with N,N,N',N'-
 tetramethylethylenediamine 25053-27-4, Poly(vinyl sulfonic
 acid) sodium salt 82375-86-8, Neosepta AFN 82442-25-9
 107721-13-1, Neosepta AM1 117548-30-8, Acrylonitrile-
 chloromethylstyrene copolymer trimethylamine salt
 (composite membranes contg. conducting polymers and, for
 batteries)

IT 25067-58-7, Polyacetylene 25168-37-0, Poly(p-phenylene diamine)
 30604-81-0, Polypyrrole 72945-66-5, Poly(N-methyl pyrrole)
 89761-73-9 91201-85-3
 (composite membranes contg. ion exchangers and, for
 batteries)

L35 ANSWER 6 OF 8 HCA COPYRIGHT 2007 ACS on STN
 AN 109:182718 HCA Full-text
 TI A metal/metal salt solid-state reference electrode, method
 for its preparation, and a pH sensor containing it
 IN Heider, John Edward; Kinlen, Patrick John
 PA Monsanto Co., USA
 SO Eur. Pat. Appl., 9 pp.
 CODEN: EPXXDW

DT Patent
 LA English

FAN.CNT 1

	PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
PI	EP 267892	A2	19880518	EP 1987-870157	198711 12
	EP 267892	A3	19901031		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	AU 8781161	A	19880519	AU 1987-81161	198711 12
	AU 599434	B2	19900719		
	JP 63135853	A	19880608	JP 1987-286418	198711 12
	BR 8706125	A	19880621	BR 1987-6125	198711 12
	CA 1285614	C	19910702	CA 1987-551623	198711 12
	US 4908117	A	19900313	US 1989-304007	198901 30

PRAI US 1986-929879 A 19861113

AB The electrode is in contact with an immobilized electrolyte, and there is a coating of a perfluorocarbon copolymer cation-exchange polymer on the immobilized electrolyte. A dip-coating method is used in manuf. The pH sensor has a sensing portion and a support of elec. nonconductive material. It has a junction-type solid state metal/metal oxide in contact with the support in combination with (b) a Ag/AgCl ref. electrode in contact with the support wherein the ref. electrode has an immobilized electrolyte in contact with Ag/AgCl, and (c) a coating of a perfluorocarbon copolymer cation-exchange polymer

on the sensing portion of the pH sensor. In this way, the migration of the electrolyte away from the electrode is prevented.

IT 9080-67-5D, Polyvinylbenzyl chloride, quaternized
with triethylamine
(immobilized electrolyte, in metal/metal salt
solid-solid ref. electrode)
RN 9080-67-5 HCA
CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2

CMF C9 H9 Cl

CCI IDS



D1-CH₂-Cl

D1-CH=CH₂

IC ICM G01N027-30
CC 79-2 (Inorganic Analytical Chemistry)
ST ref electrode solid state; pH sensor solid state
electrode
IT Coating materials
(fluoropolymer, in ref. electrodes with immobilized
electrolyte)
IT Electrodes
(ref., solid-state)
IT 9080-67-5D, Polyvinylbenzyl chloride, quaternized
with triethylamine
(immobilized electrolyte, in metal/metal salt
solid-solid ref. electrode)
L35 ANSWER 7 OF 8 HCA COPYRIGHT 2007 ACS on STN
AN 107:8072 HCA Full-text
TI Design of charge-mosaic membrane
AU Kawato, Hiroshi; Kakimoto, Masaaki; Tanioka, Akihiko; Inoue, Takashi
CS Tokyo Inst. Technol., Tokyo, Japan
SO Kenkyu Hokoku - Asahi Garasu Kogyo Gijutsu Shoreikai (1986), 49,

77-82

CODEN: AGKGAA; ISSN: 0365-2599

DT Journal
LA Japanese

AB A polymer film with regularly phase-sepd. structure was prepd. by soln. casting of poly(vinylbenzyl chloride) (I) and acrylonitrile-styrene copolymer (II). The structure had a characteristic feature of periodicity and dual connectivity of phases. Both phases were crosslinked by a series of chem. modifications, the I phase being quaternized and that of II sulfonated. The modified film obtained exhibited reverse osmosis and selective permeability (permeable only to electrolytes).

IT 9080-67-5D, Poly(vinylbenzyl chloride), quaternized
(phase-sepd. membrane compns. contg. sulfonated
acrylonitrile-styrene copolymer and)

RN 9080-67-5 HCA

CN Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 30030-25-2

CMF C9 H9 Cl

CCI IDS



D1-CH₂-Cl

D1-CH=CH₂

CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 38

IT 9080-67-5D, Poly(vinylbenzyl chloride), quaternized
(phase-sepd. membrane compns. contg. sulfonated
acrylonitrile-styrene copolymer and)

L35 ANSWER 8 OF 8 HCA COPYRIGHT 2007 ACS on STN

AN 85:109641 HCA Full-text

OREF 85:17609a,17612a

TI Ion-exchange membranes having good durability

IN Sata, Toshikatsu; Izuo, Ryuji; Takada, Kuniaki; Murakami, Shoji

PA Tokuyama Soda Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 38 pp.
CODEN: JKXXAF

DT Patent
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	
PI	JP 51014887	A	19760205	JP 1974-86032	197407 29
	JP 57054175	B	19821117		
PRAI	JP 1974-86032	A	19740729		
AB	Ion exchangers are coated with thin layers of nonionic polymer and top-coated with thin layers of ion exchangers having opposite charges to those of the 1st ion exchangers to give ion exchangers having good durability. Thus, a PVC fabric was impregnated with a mixt. of styrene (I) 95, 55% divinylbenzene 5, powd. PVC 100, dioctyl phthalate 25, and Bz2O2, heated, treated with a mixt. of CCl4 500, PhCH2Cl 40, and AlCl3 34 g, washed with MeOH, sulfonated with 98% H2SO4 at 60°, neutralized, immersed 1 min in I, uv-irradiated 10 min to form 0.0002-cm coatings, immersed 24 hr in a 2% soln. of poly(chloromethylstyrene) [9080-67-5] in C6H6 at 35°, treated 10 min with TiCl4, and immersed 24 hr in 30% aq. Me3N to give a membrane having Ca-Na selectivities 0.12 and 0.12 before and after 1 month of use, resp., resistivities 3.2 and 3.2 Ω -cm2, resp., transport no. 0.99 and 0.99, resp., and diffusion consts. of NaCl $4.2 + 10^{-7}$ and $4.3 + 10^{-7}$ cm/sec, resp.				
IT	9080-67-5E, Benzene, (chloromethyl)ethenyl-, homopolymer, reaction products with trimethylamine (anion exchangers, coatings on nonionic polymer-coated cation-exchange membranes, for improved durability)				
RN	9080-67-5 HCA				
CN	Benzene, (chloromethyl)ethenyl-, homopolymer (CA INDEX NAME)				

CM 1

CRN 30030-25-2
CMF C9 H9 Cl
CCI IDS



D1-CH₂-Cl

D1-CH=CH₂

- IC B01J; B01D; C08J
CC 37-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 61, 72
IT 9080-67-5D, Benzene, (chloromethyl)ethenyl-, homopolymer,
reaction products with trimethylamine 25232-41-1
26336-38-9 26877-88-3D, Pyridine, 4-ethenyl-, polymer with ethenyl
acetate, hydrolyzed
(anion exchangers, coatings on nonionic polymer-coated
cation-exchange membranes, for improved durability)